Data Communications (Data Comm)

Quick. Clear. Accurate.

Data Communications (Data Comm) will supplant many voice transmissions with digital information as the primary means of communication between pilots and air traffic controllers. The FAA's investment in Data Comm is critical to improving air safety, reducing delays, increasing fuel savings and protecting the environment.

Continuous communication among controllers and pilots is essential to safely coordinate the thousands of airplanes in the National Airspace System (NAS) at any given time. Today, controllers and pilots communicate verbally using analog radios. Voice communication is labor intensive, time consuming and limits the ability of the NAS to meet future traffic demand. With controllers talking to numerous pilots over the same frequency, there is also potential for misunderstood instructions and operational errors.

Data Comm will change this by allowing controllers and pilots to communicate with digitally delivered messages. With the push of a button, controllers will be able to send routine instructions, such as revised departure clearances and weather-avoiding reroutes, directly to the flight deck. Messages only appear on the cockpit display of the aircraft to which it applies, reducing the potential for miscommunication that can reduce operating efficiency and safety margins.

Data Comm will also help aircraft fly more direct routes, which will save time and fuel, and reduce aircraft exhaust emissions. Because Data Comm connects with an aircraft's flight management system, complex route instructions and procedures will be quickly loaded upon acceptance by the pilot. This direct, error-free exchange of information will enable air traffic controllers and aircraft flying in the NAS, to take full advantage of the advanced features and real-world benefits of NextGen.

Data Comm Results

Data Comm will:

- Reduce controller and flight crew workload
- Support improved airspace efficiency
- Provide a more reliable, efficient means of communication between controllers and pilots
- Enable the digital transmission of complex airborne reroutes
- Take advantage of NextGen air traffic management systems to provide additional benefits
- Reduce weather-related departure delays

Data Comm Benefits

Data Comm Benefits include:

- Decreased reliance on voice communication and frequency congestion
- Significantly reduced communication errors, resulting operational errors, and flight crew deviations
- Streamlined pre-departure clearance delivery and the ability to digitally transmit time-saving revised clearances
- Implementation of advanced trajectory based operations and the transition to air traffic management

Data Comm Tower Trials

Trials of Data Comm services using prototype equipment are being conducted in conjunction with key FAA partners. The first Data Comm tower trials, focusing on the digital delivery of pre-departure clearances, began in spring 2013 at Memphis International Airport with FedEx as the lead airline. Trials at Newark Liberty International Airport followed closely, with United Airlines. These trials reduce risk associated with development of the final system and help identify operational, training and procedural issues. They further validate system requirements, demonstrate the benefits that encourage user equipage, and gather stakeholder feedback in advance of full-scale operations.

Cost Savings

Services to be provided by Data Comm are conservatively estimated to save operators more than $10 billion over the 30-year lifecycle of the program and save the FAA approximately $1 billion in operating costs.

Data Comm Contract Award

The FAA awarded a long-term Data Comm Integrated Services (DCIS) contract in September 2012. The 7-year contract (which can be renewed for as much as 10 additional years) provides the engineering and communications infrastructure for Data Comm messages, as well as incentives for operator equipage. Current Data Comm program schedules provide for the initial tower services to be implemented at the busiest airports starting in 2016. The second phase of the program will provide expanded Data Comm services at all FAA en route (high-altitude traffic) control centers beginning in 2019.

Avionics Equipage Plans

To stimulate early use of Data Comm technology and services, the FAA is leveraging the DCIS contract to establish an avionics equipage incentive program for U.S. air carriers. This equipage initiative, launched in 2013 and available for a limited time, is designed to accelerate benefits by promoting timely adoption of the new technology. Airlines are planning to equip over 1,000 aircraft to support initial Data Comm operations.